



Using social impact games to overcome intractable conflicts: the case of Fact Finders and PeaceMaker

Ronit Kampf & Iolie Nicolaidou

To cite this article: Ronit Kampf & Iolie Nicolaidou (03 Apr 2024): Using social impact games to overcome intractable conflicts: the case of Fact Finders and PeaceMaker, Information, Communication & Society, DOI: [10.1080/1369118X.2024.2331770](https://doi.org/10.1080/1369118X.2024.2331770)

To link to this article: <https://doi.org/10.1080/1369118X.2024.2331770>



© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 03 Apr 2024.



Submit your article to this journal [↗](#)



Article views: 268



View related articles [↗](#)



View Crossmark data [↗](#)

Using social impact games to overcome intractable conflicts: the case of Fact Finders and PeaceMaker

Ronit Kampf^a and Iolie Nicolaidou^b

^aDepartment of International Relations, Hebrew University of Jerusalem and Tel Aviv University, Jerusalem, Israel; ^bDepartment of Communication and Internet Studies, Cyprus University of Technology, Limassol, Cyprus

ABSTRACT

Is there a spillover effect in multiperspectivity regarding the Israeli-Palestinian conflict among Israeli and Palestinian undergraduate students that results from playing a social impact game about a different conflictual context? We examined whether playing Fact Finders (Cyprus conflict) and PeaceMaker (Israeli-Palestinian conflict) in a different order and whether playing only one of the two games impacts multiperspectivity regarding these conflicts. 203 Israeli and Palestinian students participated in a quasi-experimental pre-test post-test design. Israelis and Palestinians playing Fact Finders first developed significantly more multiperspectivity on the Israeli-Palestinian conflict, than those playing PeaceMaker first. In addition, Israelis playing only Fact Finders developed significantly higher multiperspectivity regarding the Cyprus conflict and the Israeli-Palestinian conflict, unlike those playing only PeaceMaker. This is the first time multiperspectivity for direct parties to the conflict is observed for the Israeli/Palestinian conflict through digital games. Moreover, this is the first study to indicate a spillover effect in multiperspectivity from a different conflictual context to one's own context. This research adds to our understanding of the effects of social impact games, suggesting that the multiperspectivity effect of the aforementioned games may extend well beyond a specific conflictual context.

ARTICLE HISTORY

Received 3 October 2023
Accepted 12 February 2024

KEYWORDS

Serious games; fact finders; peacemaker; conflict resolution; attitude change

Introduction

Young people on both sides of intractable inter-group conflicts hold strong ethnocentric perspectives toward the other side which are highly resistant to change and involve well-entrenched hostile perceptions of the 'other' (Bar-Tal, 2013; Kriesberg et al., 1989). Changing the hostile perspectives of young people in such conflicts is critical to transform the conflict. Conflict narratives promote an ethnocentric view of the parties that hardly connect directly with each other (Bar-Tal, 1997). Tackling these viewpoints is highly important because peace needs more than just agreements

CONTACT Ronit Kampf  ronit.kampf@mail.huji.ac.il  Department of International Relations, Hebrew University of Jerusalem and Tel Aviv University, Mount Scopus, 9190501, Jerusalem, Israel

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

(Saunders, 2001). Different interventions have been used to rethink ethnocentric perspectives among young people in intractable conflicts including virtual reality, mobile applications and more (e.g., Porat et al., 2020). We use games for social impact, specifically digital games about intractable conflicts, to train young people to rethink strong ethnocentric perspectives and well-entrenched negative perceptions of the ‘other’. Such interventions can reach young people in an engaging way (e.g., Nicolaidou et al., 2023), softening the loaded and highly intense aspects of the conflict (e.g., Kampf, 2015) and are highly appealing to young people born into the digital age (e.g., Boyd, 2014; Prenksy, 2001).

Studies using social impact games about intractable conflicts like the Israeli-Palestinian situation (PeaceMaker) and the Cyprus conflict (Fact Finders) produced mixed results regarding multiperspective viewpoints, particularly for direct parties to the conflict (e.g., Cuhadar & Kampf, 2014; Nicolaidou et al., 2023). The game about the Cyprus conflict contributed to developing multiple perspectives on a conflict in general and regarding the Cyprus conflict in particular for direct parties of the conflict (Nicolaidou et al., 2023), unlike the game about the Israeli-Palestinian situation that contributed to developing multiple perspectives regarding the Israeli-Palestinian conflict only among third party participants (i.e., Americans & Turks).

This study examines under what conditions social impact games, such as Fact Finders and PeaceMaker, can be effective for peace education and peace building, focusing on the spillover effect. Based upon studies conducted about the spillover effect in different political contexts (e.g., Baumgartner, 2016; Baumgartner, 2013), we define the spillover effect as influencing multiple perspectives in a game about one’s own conflict after playing a game about another conflict. Thus, a game may obtain a spillover effect if it influences multiperspectivity regarding the conflict it covers as well as regarding another conflict, not covered in the game. The spillover effect has been studied in different political contexts (De Zuniga et al., 2021; Feezell & Ortiz, 2021; Lee et al., 2022), particularly incidental political learning, but to our knowledge it has not been examined in the context of conflict resolution and peace education. Young Israeli and Palestinian people are involved in some of the key political decisions in the conflict (Hasler et al., 2023) and are native to the language of digital games (Prenksy, 2001). Therefore, any adverse effects of social impact games may affect their multiperspectivity regarding the Israeli-Palestinian conflict in a lasting way. Spillover effects of social impact games, in other words, may have important consequences in the context of peacebuilding and conflict resolution.

This study focused on the spillover effect, which involved participants in playing the games in four conditions: a) Fact Finders (FF) first and PeaceMaker (PM) second, b) PM first and FF second, c) FF only, d) PM only. The first two conditions were conducted among Israeli-Jewish and Palestinian undergraduate students playing a game about the Israeli-Palestinian conflict (PM) and a game about the Cyprus conflict (FF) in a different order (either PM first or FF first) in order to see whether games contribute to multiperspectivity, a crucial conflict analysis skill, and whether a spillover effect can be detected. The last two conditions were conducted among Israeli-Jewish undergraduate students playing only one game, either PM or FF, to examine if playing a game from a different conflictual context (i.e., Cyprus conflict) leads to higher multiperspectivity for one’s own conflictual context (Israeli-Palestinian conflict).

Digital games, multiperspectivity and spillover effect

Multiperspectivity in the context of conflict resolution requires acknowledging that multiple coexisting perspectives can surround a conflict. It is rooted in the epistemological understanding that perceiving a conflict, particularly among direct parties, may be subjective. In general, it is difficult for individuals to view a situation from multiple perspectives (Devon & Wansink, 2022). In this paper, multiperspectivity refers to a critical and interpretational approach to conflict resolution and it is activated to address intractable conflicts using one's own perspective ('my side') and the other side's perspective ('the other') (Devon & Wansink, 2022).

Studies have indicated that young people in intractable conflicts tend to prefer information that confirms their perspectives rather than contradicts them (Bail et al., 2018; Ross & Stillinger, 1988). Therefore, it is hard for them to develop multiperspectivity regarding the conflict, particularly given their strong and ethnocentric perceptions regarding the situation in the beginning. Digital games may enable young people, more than do other interventions, to be exposed to multiple perspectives in the conflict (i.e., contradicting information) (McKeown & Dixon, 2017), because playful activities can minimize the tension and loaded atmosphere around such issues and because games are both engaging and interactive in a way that is fun for the players (Cuhadar & Kampf, 2014). Play can be naturally conducive to learning (Cuhadar & Kampf, 2014). In fact, learning by experiencing things was found preferable as an intervention method in the context of intractable conflicts (McKeown & Dixon, 2017).

However, as mentioned earlier, social impact games produced mixed results regarding multiperspectivity, particularly among direct parties (Cuhadar & Kampf, 2014; Nicolaidou et al., 2023). Therefore, a spillover effect in the context of digital games may be particularly effective for developing multiperspectivity regarding intractable conflicts, because young people on the divide may find it easier to be exposed to a game about a different conflictual context (i.e., indirect intervention) (e.g., Hasler et al., 2023), which influences multiperspectivity regarding their own conflictual context. Therefore, the spillover effect (Baumgartner, 2016; Baumgartner, 2013; De Zuniga et al., 2021; Feezell & Ortiz, 2021; Lee et al., 2022) may be an important tool for developing multiperspectivity regarding the loaded and emotionally charged situation, particularly among young people with strong ethnocentric attitudes about the conflict. The spillover effect of social impact games may have major consequences in the context of conflict resolution and peacebuilding, particularly among young Israeli and Palestinian people who are involved in key political decisions in the Israeli-Palestinian conflict (Hasler et al., 2023). Moreover, the spillover effect may indicate adverse effects of social impact games, providing a lasting impact on young Israeli and Palestinian people's multiperspectivity regarding the situation. This study focuses on the Israeli-Palestinian conflict and the Cyprus conflict which are regarded as intractable conflicts, prolonged ethnonational conflicts that have been ongoing for more than 60 years, and that have witnessed numerous unfruitful attempts for resolution (Hasler et al., 2023). Even though there is a difference in their severity, studies show important similarities between young people in these conflicts (e.g., Hasler et al., 2023). For instance, studies have shown that both Israeli and Palestinian young people as well as Greek-Cypriot and Turkish-Cypriot young people lack hope

for peace and hope for overcoming their troubled pasts despite the deep difference in the severity of the aforementioned conflicts (Hasler et al., 2023).

Though we selected the Israeli-Palestinian and the Cyprus conflicts for this study, we focus only on Israeli and Palestinian participants because previous studies didn't indicate multiperspectivity outcomes for either ethnic group (Cuhadar & Kampf, 2014; Kampf & Stoloro, 2017), unlike Greek-Cypriots who developed significantly higher multiperspective attitudes after playing the FF game (Nicolaidou et al., 2023).

We focus on serious games for social change about the Israeli-Palestinian conflict and the Cyprus conflict. Serious games are defined as software that was developed using game technologies and according to principles of game design for a goal beyond pure entertainment (e.g., social change) (Angeli et al., 2021; Mitgutsch, 2011). Games about the aforementioned conflicts were selected for a few key considerations. First, we had a limited number of digital games about intractable conflicts to select from and the two games which were selected were a good fit for comparison given previous research which indicated that FF contributes to general and conflict-specific multiperspectivity among direct parties to the conflict, unlike PM (Cuhadar & Kampf, 2014; Nicolaidou et al., 2023). Therefore, we thought that these games that represent two distinct conflicts are a good basis to study the spillover effect in multiperspectivity. In addition, the FF intervention may be regarded as a relatively indirect intervention, because it doesn't include specific reference to the Israeli-Palestinian conflict. Therefore, it may cause less rejection among Israelis and Palestinians who hold strong ethnocentric attitudes towards the 'other' in the conflict, required to obtain spillover effects in multiperspectivity (Hasler et al., 2023). Finally, both PM and FF include multiperspectivity, but PM is from the perspective of leaders on both sides, while FF is from the perspective of people living on the divide. Therefore, the former may be more context-dependent, unlike the latter, which is more universal. Studies have indicated (e.g., Hasler et al., 2021; Levy et al., 2022) that a more universal perspective results in more multiperspectivity which may be required for obtaining a spillover effect between different conflictual contexts.

The fact finders game

The players can gradually open in FF, within 30 minutes, a variety of historical sources describing life in Cyprus immediately after 1974 (when Turkey invaded the north part of the island). The players start with evaluating the credibility of each source, and get positive feedback if their answer is correct and negative feedback if their answer is incorrect. Then the players need to evaluate the relevance of each source of information. The players can select the source for their final report if it is relevant, and they get points and feedback according to their decision. The players are exposed to multiple perspectives (De Angeli et al., 2018) and different narratives through the game. The players are exposed to the suffering experienced from the war by both Greek-Cypriot and Turkish-Cypriot people. This is expected to help them be more open to the possibility of overcoming their country's troubled past.

The PeaceMaker game

A player in PM can assume the role of the Israeli Prime Minister or the role of Palestinian President and take on a series of actions in order to resolve the conflict (Burak et al., 2005). The game focuses on a two-state solution to the Israeli – Palestinian conflict by

satisfying Israeli and Palestinian constituents. The game is available in Arabic, English, and Hebrew, and can be played at calm, tense or violent difficulty levels that differ in the frequency of inciting events that are beyond the player's control. The player can select security, political or construction actions in order to deal with the events that appear on the screen, each branching into different sub-categories such as speeches and check-points. The player gains points for both Israeli and Palestinian sides according to the actions taken in the game. The scores, calculated by an algorithm within the game, are closely connected to the polls indicating the level of satisfaction of different nations and political groups within each side and around the world in response to the player's actions. Scores for both Israeli and Palestinian sides should reach 100 points each in order to win the game. If one of the scores drops below 50, the player loses the game. The game was launched in 2007 and therefore it is less updated to current events in the conflict. Yet our study focuses on multiperspectivity and therefore the degree to which the simulation is updated to current events is less crucial. In addition, studies did not find multiperspectivity for participants who played the game when it was launched and later (Cuhadar & Kampf, 2014), and research suggested that even today young people perceive the game as important, enjoyable and educational (Kampf & Cuhadar, 2015). The game exposes the players to multiple perspectives regarding the Israeli-Palestinian conflict from Israeli and Palestinian leaders' viewpoints, and lets them see how the situation can change from one leader to the other. In addition, the game exposes the players to the viewpoints of different groups on each side (e.g., Jewish settlers, Hamas and Fatah) in response to the leaders' actions.

Methods

Materials and research design

Two games were used in this study: FF and PM. The research design of the study was a pre-test post-test experimental design. The study was conducted in two phases. For the first phase of the study, convenience sampling was used to identify 61 participants (in two groups of 31 Israelis and 30 Palestinians) who were asked to play FF first and PM second. A second sample of 61 participants (in two groups of 31 Israelis and 30 Palestinians) were asked to play PM first and FF second, to explore the impact of the spillover effect. For the second phase of the study, convenience sampling was used to identify 81 Israeli participants (in two groups of 39 and 42) who studied at the same university in Israel as participants in the first phase of the study. Thirty-nine (39) Israelis were asked to play only PM and 42 played only FF to explore a possible spillover effect from a different conflictual context to one's own conflictual context.

Research questions

1. To what extent does a spillover effect regarding multiperspectivity on key historical issues in the Israeli-Palestinian conflict manifest from engaging in social impact games for Israelis and Palestinians?
2. To what extent does a spillover effect regarding multiperspectivity in general and the Cyprus conflict in particular manifest from engaging in social impact games for Israelis and Palestinians?

3. How does playing a social impact game affect Israelis' a) multiperspectivity for conflicts in general and b) multiperspectivity for the Cyprus conflict in particular?
4. How does playing a social impact game affect Israelis' multiperspectivity regarding key historical issues in the Israeli-Palestinian conflict?

Participants

For the first phase of the study (RQ1 and RQ2), 122 students participated in two different conditions. Participants in the first condition ($n = 61$, 31 Israelis and 30 Palestinians) played FF first and PM second while participants in the second condition ($n = 61$, 31 Israelis and 30 Palestinians) played PM first and FF second. A cohort of Israeli participants and a cohort of Palestinian participants who registered for two different classes at two different universities in Israel were assigned in the first condition (FF first and PM second) during a single meeting of these classes which were taught by the first author in the fall semester of 2022. Another cohort of Israeli participants and another cohort of Palestinian participants who registered for the same two classes at the same two universities in Israel as in the first condition in the spring semester of 2023 were assigned in the second condition and played PM first and FF second during a single meeting of the two classes which were taught by the first author.

Among 62 Israelis who participated in the first phase of the study, 33 were male and 29 were female, their average age was $M = 25.8$ years old ($SD = 1.17$, $min = 23$, $max = 28$), they were mainly Jewish (87.1%, 54/62) and 17% (12/62) had previous experience with playing the PM game at least once before. Among 60 Palestinians, 30 were male and 30 were female, their average age was $M = 20.35$ years old ($SD = 1.06$, $min = 19$, $max = 23$), they were mainly Muslim (90%, 54/60) and none of them had previous experience with PM.

For the second phase of the study (RQ3 and RQ4), among 81 Israeli participants (Mean age = 26.14, $SD = 1.61$), 33 were male and 48 were female, they were mainly Jewish (81.5%, 66/81) and only one participant had previous experience with playing the Peace-Maker game.

Data sources

Two data sources were used in this study. The first data source that related to PM (Cuhadar & Kampf, 2014; Kampf & Cuhadar, 2015) was a questionnaire for assessing multiperspectivity in the conflict. It examined 'how right is each side' on key historical issues in the conflict including six key issues: water, refugees, borders, settlements, Jerusalem, and security, using the following scale: 1. Palestinians are absolutely right, 2. Palestinians are somewhat right, 3. Both sides are equally right, 4. Israelis are somewhat right, and 5. Israelis are absolutely right. The first questionnaire was used to answer RQ1 and RQ4 and it was administered before and after students' interaction with the PM game. The questionnaires used before and after the game were identical.

The second data source that related to FF was a questionnaire on multiperspectivity in conflicts a) in general and b) in the Cyprus conflict in particular, which was also used in (Nicolaidou et al., 2023). An example statement on multiple perspectives in general is the

following: 'In a historical conflict, there are at least two different perspectives'. An example statement on multiple perspectives that are conflict-specific is the following: 'Greek Cypriots and Turkish Cypriots have different viewpoints with respect to the Cyprus problem and this is legitimate'. Participants responded using a 5-point Likert scale ranging from 1 = completely disagree to 5 = completely agree. Identical questionnaires were administered before and after students' interaction with the FF game. The second questionnaire was used to answer RQ2 and RQ3.

Procedure and data collection

The study was conducted in 2022-2023. The data from the first condition (FF first, PM second) were collected in the fall semester 2022 and the data from the second condition (PM first, FF second) were collected in the spring semester 2023. No major event happened between the data collection of the two studies that could bias the results.

At the first stage of the study, students were informed in writing and verbally about the study's objective by the first author. The study followed American Psychological Association (APA) ethical standards and General Data Protection Regulation (GDPR) guidelines. It meets the ethical guidelines, including adherence to the legal requirements of the country where the study was conducted (Israel). Participants provided their consent online by selecting boxes indicating that they are adults (older than 18 years old), that they understand the study's objective, and that they agree to voluntarily provide anonymous data using a project ID number that was assigned to them instead of their name. Participants anonymously completed a pre-test online, interacted with each game for 30 min, provided their final score in each game and then completed the same instrument as a post-test online.

The study took up to two and a half hours and included four parts. First, participants completed pretests before each game. Second, they were introduced to a game and played it for thirty minutes. In the PM game, they played the Israeli role at the calm conflict level. After playing each game the participants completed a post-test. Thus, the participants filled in a pretest before each game and a post-test after each game.

When participants entered the computer lab, they were told that they are going to play two games – one about the Israeli-Palestinian conflict and the other about the Cyprus conflict for half an hour each. They were told that the study examines their effectiveness as learning tools for young people in different conflict zones around the world. The aforementioned cover story in the instructions was given in all the studies with PeaceMaker and this cover story did not have any impact on learning outcomes among Israeli-Jewish and Palestinian students in previous studies (Cuhadar, & Kampf, 2014; Kampf & Cuhadar, 2015).

The second phase of the study was conducted in September 2023. No major events happened between the data collection of the two phases of this study that could bias the results. The study was conducted as a welcome day to new students in a university in Israel. The study took approximately an hour and included three parts. First, participants completed pretests before the game assigned. Second, they were introduced to the game assigned and played it for thirty minutes. In the PM game, they played the Israeli

role at the calm conflict level. Finally, after playing the game assigned the participants completed post-tests and provided their final score.

Data analysis

Data from the pre – and post-questionnaires was input in a statistical package (IBM SPSS Statistics 25) for analysis. Pre – and post-questionnaires could be matched with the use of a project ID number that was assigned to participants.

For PM, participants' multiperspectivity on key historical aspects of the conflict was computed by calculating the average score of their responses on the six key issues: water, refugees, borders, settlements, Jerusalem, and security. This variable was used for answering RQ1 and RQ4.

For FF, participants' multiperspectivity in general and multiperspectivity for the Cyprus conflict, in particular, were computed by calculating the average score of their responses in the three items corresponding to each dimension, respectively. This variable was used for answering RQ2 and RQ3.

Paired samples t-tests were used to compare students' multiperspectivity before and after playing each game. Paired samples t-tests were chosen because they are the most appropriate statistical test when the aim is to assess the change in a continuous outcome variable within subjects across two observations. Assumptions of normality and homogeneity of variance were met.

The alpha level was set a priori to 0.05 for all statistical analyses.

Results

RQ1 To what extent does a spillover effect regarding multiperspectivity on key historical issues in the Israeli-Palestinian conflict manifest from engaging in social impact games for Israelis and Palestinians?

The first research question attempted to examine whether the order in which the games are played affects Israeli and Palestinian students' multiperspectivity regarding key historical issues in the conflict. **Table 1** shows students' multiperspectivity before and after playing the PM game, as measured with the first questionnaire, in the two conditions, playing FF first and playing PM first.

An independent samples t-test verified that the two groups of Israeli students who played FF first ($M = 3.81$, $SD = 0.23$) and who played PM first ($M = 3.92$, $SD = 0.24$) were equivalent with respect to their initial multiperspectivity on the conflict ($t_{60} = -1.99$, $p = 0.051$).¹ The same test established equivalence for Palestinian students who played FF first ($M = 1.74$, $SD = 0.29$) and who played PM first ($M = 1.72$, $SD = 0.21$) with respect to their initial multiperspectivity on the conflict ($t_{58} = 0.343$, $p = 0.733$).

With respect to key historical issues, and focusing on students who played FF first, Israeli students' multiperspectivity changed significantly from $M = 3.81$ ($SD = 0.23$) before playing the game to $M = 3.38$ ($SD = 0.15$) after playing the PM game, as shown by a paired-samples t-test analysis (**Table 1**). A lower mean in this case is interpreted as a shift towards a less ethnocentric viewpoint. This shift indicates that Israeli students lean towards identifying that both sides are equally right after playing the PM game. The same finding is observed for the Israeli students who played PM

Table 1. Israeli and Palestinian students' multiperspectivity on key historical issues of the Israeli-Palestinian conflict before and after playing PeaceMaker.

Multiperspectivity on	Order of playing games	Nationality	Before the game		After the game		Change in multiperspectivity Paired samples t-test
			M	SD	M	SD	
key historical issues of the Israeli-Palestinian conflict	Fact Finders first	Israelis (n = 31)	3.81	0.23	3.38***	0.15	$t_{30} = 12.84, p < 0.001$
	Fact Finders first	Palestinians (n = 30)	1.74	0.29	2.23***	0.24	$t_{29} = -12.25, p < 0.001$
	PeaceMaker first	Israelis (n = 31)	3.92	0.24	3.75***	0.23	$t_{30} = 4.25, p < 0.001$
	PeaceMaker first	Palestinians (n = 30)	1.72	0.21	1.84***	0.23	$t_{29} = -3.80, p < 0.001$

* $p < 0.05$. ** $p < 0.01$, *** $p < 0.001$. Note scale: 1. Palestinians are absolutely right, 2. Palestinians are somewhat right, 3. Both sides are equally right, 4. Israelis are somewhat right, and 5. Israelis are absolutely right

first, as there is a noticeable change towards the right direction. This finding shows that playing both games is effective for positively changing Israeli participants' multiperspectivity.

Does the order of playing the games have an impact when we compare Israeli students' multiperspectivity after playing both games? To examine the impact of game order on students' multiperspectivity, an independent samples t-test focusing on Israeli students' multiperspectivity after playing the game indicates a significant difference ($t_{60} = -7.62; p < .001$) between Israeli students who played FF first ($M = 3.37, SD = 0.15$) compared to Israeli students who played PM first ($M = 3.75, SD = 0.23$). Specifically, students who played FF first lean more towards identifying that 'both sides are equally right' after playing the PeaceMaker game, while students who played PM first seem to be closer to the statement that 'Israelis are somewhat right'. This indicates a spillover effect from the FF game to the PM game. Israeli students who played FF first developed significantly less ethnocentric perspectives compared to Israeli students who played PM first.

Next, we repeat these two analyses for Palestinians. With respect to key historical issues, and focusing on Palestinians who played FF first, a paired-samples t-tests analysis showed that Palestinian students' multiperspectivity changed significantly from $M = 1.74$ ($SD = 0.29$) before playing the game to $M = 2.23$ ($SD = 0.24$) after playing the PM game (Table 1). This shift indicates that Palestinian students lean towards identifying that 'Palestinians are somewhat right' rather than 'absolutely right' after playing the PM game. The same finding is observed for the Palestinian students who played PM first, who are not as absolute in their views after playing the game as they were in the beginning. This finding shows that playing both games is effective for positively changing Palestinian participants' multiperspectivity.

To examine the impact of game order on students' multiperspectivity on key historical issues of the conflict, an independent samples t-test focusing on Palestinian students' multiperspectivity after playing the game indicates a significant difference ($t_{58} = 6.33; p < .001$) between Palestinian students who played FF first ($M = 2.23, SD = 0.24$) compared to Palestinian students who played PM first ($M = 1.84, SD = 0.23$). Palestinian students who played FF first seemed to have developed a significantly less ethnocentric view on the conflict. Again, this indicates a spillover effect from the FF game to the PM game.

To sum, a spillover effect was identified from FF to PM for both Israelis and Palestinians who both developed a more multiperspective view on the Israeli-Palestinian conflict when they played FF first and PM second.

Table 2. Israeli and Palestinian students' perspectives in general and for Cyprus in specific before and after playing Fact Finders.

Multiperspectivity	Order of playing games	Nationality	Before the game		After the game		Change in multiperspectivity
			M	SD	M	SD	Paired samples t-test
Multiple perspectives in general	Fact Finders first	Israelis (n = 31)	3.04	0.89	3.22*	0.66	$t_{30} = -2.44, p = 0.021$
	Fact Finders first	Palestinians (n = 30)	2.82	0.66	3.21***	0.56	$t_{29} = -7.0, p < 0.001$
	PeaceMaker first	Israelis (n = 31)	3.05	0.89	3.26*	0.66	$t_{30} = -2.7, p = 0.011$
	PeaceMaker first	Palestinians (n = 30)	2.87	0.65	3.17***	0.57	$t_{29} = -4.27, p < 0.001$
Multiple perspectives for the Cyprus conflict	Fact Finders first	Israelis (n = 31)	3.23	0.33	3.61***	0.37	$t_{30} = -6.67, p = 0 < 0.001$
	Fact Finders first	Palestinians (n = 30)	2.92	0.42	3.62***	0.40	$t_{29} = -9.7, p < 0.001$
	PeaceMaker first	Israelis (n = 31)	3.25	0.31	3.53***	0.37	$t_{30} = -4.81, p = 0 < 0.001$
	PeaceMaker first	Palestinians (n = 30)	2.91	0.41	3.43***	0.39	$t_{29} = -7.12, p < 0.001$

* $p < 0.05$. ** $p < 0.01$, *** $p < 0.001$.

RQ2 To what extent does a spillover effect regarding multiperspectivity in general and the Cyprus conflict in particular manifest from engaging in social impact games for Israelis and Palestinians?

Table 2 shows students' multiperspectivity in general and in the Cyprus conflict in particular, before and after playing the FF game, in the two conditions, playing FF first and playing PM first.

Multiperspectivity in general

An independent samples t-test verified that the two groups of Israeli students who played FF first ($M = 3.04$, $SD = 0.89$) and who played PM first ($M = 3.05$, $SD = 0.89$) were equivalent with respect to their initial general multiperspectivity ($t_{60} = -1.99$, $p = 0.962$).

With respect to general multiperspectivity, and focusing on students who played FF first, Israeli students' attitudes changed significantly from $M = 3.04$ ($SD = 0.84$) before playing the game to $M = 3.22$ ($SD = 0.66$) after playing the FF game (Table 2), indicating that students held more positive perspectives towards understanding multiperspectivity in conflicts. The same significant change was observed for Israeli students who played PM first, indicating that in both conditions' students developed higher multiperspectivity after playing FF.

To examine the impact of game order on students' general multiperspectivity after playing FF, an independent samples t-test was conducted. Israeli students' multiperspectivity was very close for the group that played FF first ($M = 3.22$, $SD = 0.56$) compared to the group that played PM first ($M = 3.26$, $SD = 0.37$), and this difference was not significant ($t_{60} = -0.26$, $p = 0.798$). This finding indicates that there was no spillover effect from PM to FF with respect to multiperspectivity in general for Israeli students.

With respect to multiperspectivity, and focusing on Palestinian students who played FF first, Palestinian students' multiperspectivity changed significantly from $M = 2.82$ ($SD = 0.66$) before playing the game to $M = 3.21$ ($SD = 0.56$) after playing the FF game (Table 2). The same significant change was observed for Palestinian students who played PM first, indicating that in both conditions' students developed higher multiperspectivity after playing FF.

Palestinian students' multiperspectivity is higher for the group that played FF first compared to the group that played PM first, but the difference was not significant as shown by an independent samples t-test ($t_{58} = -0.305$, $p = 0.762$) that was used to examine the impact of game order, indicating the lack of a spillover effect.

To sum, a spillover effect from PM to FF was not identified for Israelis or Palestinians with respect to developing higher general multiperspectivity.

Multiperspectivity in the Cyprus conflict in particular

An independent samples t-test verified that the two groups of Israeli students who played FF first ($M = 3.23$, $SD = 0.33$) and who played PM first ($M = 3.61$, $SD = 0.37$) were equivalent with respect to their multiperspectivity with respect to the Cyprus conflict ($t_{60} = -0.26$, $p = 0.791$). As shown by paired samples t-tests in Table 2, Israeli students developed significantly higher multiperspectivity for the Cyprus conflict for both conditions (playing FF first or playing PM first). To examine the impact of game order on students' multiperspectivity for the Cyprus conflict after playing FF, an independent samples t-test was conducted, which was not significant ($t_{60} = 0.904$, $p = 0.369$), indicating that there was no spillover effect from PM to FF.

An independent samples t-test verified that the two groups of Palestinian students who played FF first and who played PM first were equivalent with respect to their multiperspectivity with respect to the Cyprus conflict ($t_{58} = 0.104$, $p = 0.917$).

As shown by paired samples t-tests in Table 2, Palestinian students also developed significantly higher multiperspectivity for the Cyprus conflict for both conditions (playing FF first or playing PM first). To examine the impact of game order on students' multiperspectivity for the Cyprus conflict after playing FF, an independent samples t-test was conducted, which was not significant ($t_{58} = 1.84$, $p = 0.07$), indicating that there was no spillover effect.

To sum, there was no spillover effect for Israelis or Palestinians, who are third parties to the Cyprus conflict, with respect to conflict-specific multiperspectivity, from PM representing one's context (Israeli-Palestinian conflict) to FF representing a different conflictual context (Cyprus conflict).

Do Israelis playing only FF experience a change in multiperspectivity regarding the Israeli-Palestinian conflict differently than those who played only PM? The second phase examines this question by adding two groups who played only one of the two games.

RQ3 How does playing a social impact game affect Israelis' a) multiperspectivity for conflicts in general and b) multiperspectivity for the Cyprus conflict in particular?

Table 3 shows Israeli students' multiple perspectives in the Cyprus conflict before and after playing only FF and before and after playing only PM. Israeli students who played only FF and only PM were equivalent groups with respect to their initial multiperspectivity in general ($t_{79} = -0.397$, $p = 0.692$) and their initial multiperspectivity in the context of the Cyprus conflict ($t_{79} = -1.696$, $p = 0.094$), before playing either game.

With respect to multiple perspectives, and focusing on multiple perspectives at a general level for Israeli students who played only FF, we observe that Israeli students' multiperspectivity in general increased significantly from $M = 3.03$ ($SD = 0.76$) before playing the game to $M = 3.27$ ($SD = 0.58$) after playing the FF game (Table 3), indicating that students held more positive multiperspectivity towards conflicts in general after the FF game. The same significant change was observed for Israeli students who played only FF with respect to their multiple perspectives for the Cyprus conflict in particular, indicating that the game FF contributed in positively changing their multiple perspectives both for conflicts in general as well as in the context of a specific conflict, the Cyprus conflict.

Table 3. Israeli students' multiple perspectives (for conflicts in general and for the Cyprus conflict and Israeli-Palestinian conflict in particular) before and after playing either only Peace Maker or only Fact Finders.

Multiperspectivity	Game played	Nationality	Before the game		After the game		Change in multiperspectivity
			M	SD	M	SD	Paired samples t-test
multiple perspectives (general)	Fact Finders only	Israelis (n = 39)	3.03	0.76	3.27***	0.58	$t_{38} = -3.70, p = 0.001$
	PeaceMaker only	Israelis (n = 42)	2.96	0.72	2.97	0.64	$t_{41} = -0.27, p = 0.785$
multiple perspectives (Cyprus conflict)	Fact Finders only	Israelis (n = 39)	3.28	0.28	3.67***	0.33	$t_{38} = -7.5, p < 0.001$
	PeaceMaker only	Israelis (n = 42)	3.18	0.25	3.13*	0.22	$t_{41} = 2.61, p = 0.012$
key historical issues in the Israeli-Palestinian conflict	Fact Finders only	Israelis (n = 39)	3.74	0.30	3.29***	0.19	$t_{38} = 11.43, p < 0.001$
	PeaceMaker only	Israelis (n = 42)	4.21	0.23	4.17	0.25	$t_{41} = 2.03, p = 0.049$

* $p < 0.05$. ** $p < 0.01$, *** $p < 0.001$. Note scale for attitudes in the Israeli Palestinian conflict: 1. Palestinians are absolutely right, 2. Palestinians are somewhat right, 3. Both sides are equally right, 4. Israelis are somewhat right, and 5. Israelis are absolutely right.

On the contrary, Israeli students who played only PM did not experience any change in their multiple perspectives for conflicts in general, which remained unchanged (Table 3). Moreover, their multiperspectivity for the Cyprus conflict in particular had a significant negative change (Table 3). This indicates that playing PM only, does not positively affect Israeli students' general or conflict-specific multiperspectivity in the context of a different conflict.

RQ4 How does playing a social impact game affect Israelis' multiperspectivity regarding key historical issues in the Israeli-Palestinian conflict?

Israeli students who played only FF had significantly less ethnocentric views ($M = 3.74$, $SD = 0.30$) on the key historical issues in the Israeli-Palestinian conflict compared to Israeli students who played only PM ($M = 4.21$, $SD = 0.23$) ($t_{79} = 7.80$, $p < 0.001$).

As shown in Table 3, Israeli students' multiperspectivity regarding key historical issues in the Israeli-Palestinian conflict decreased significantly from $M = 3.74$ ($SD = 0.30$) before playing the FF game to $M = 3.29$ ($SD = 0.19$) after playing the FF game, indicating that they developed a less ethnocentric view after playing the game. Specifically, their multiperspectivity shifted from supporting that 'Israelis are somewhat right' on key historical issues of the conflict to supporting that 'both sides are equally right'. The fact that this change was significant indicates that learning from one conflict context (Cyprus conflict presented in FF game) transfers to one's own conflict context (Israeli Palestinian conflict), when students engage in an indirect intervention, in this case when students played a game that was irrelevant to their own conflict.

On the contrary, Israeli students who played only PM did not have a significant change in their ethnocentric perspectives regarding key historical issues in the Israeli-Palestinian conflict, which remained unchanged. This finding shows that playing only PM (a game about their own conflict) does not lead to higher multiperspectivity in one's own conflict for direct parties of a conflict.

Discussion

The key objective of this research study was to determine whether there is a spillover effect on multiperspectivity regarding the Israeli-Palestinian conflict among Israeli and Palestinian undergraduate students that results from playing a social impact game (FF) about a different conflictual context (Cyprus conflict). To test the two games' (FF and PM) spillover effects, this study examined the effect of a different game order on multiperspectivity regarding the Israeli-Palestinian conflict among Israeli-Jewish and Palestinian students who are direct parties to the conflict. It also examined the spillover effect from a different conflictual context (i.e., Cyprus conflict) to one's own conflictual context (i.e., Israeli-Palestinian conflict) for Israeli students who only played FF.

The findings suggested that Israeli students who played FF first developed significantly higher multiperspectivity regarding key historical issues in the Israeli-Palestinian conflict after playing PM as the second game, while Israeli students who played PM first retained more ethnocentric perspectives. Similarly, Palestinian students who played FF first seemed to have developed significantly higher multiperspectivity on the Israeli-Palestinian conflict compared to those who played PM first. In addition, the second phase of this study indicated that Israeli students who played only FF showed ethnocentric perspectives regarding the Israeli-Palestinian situation before playing FF, and after playing this game they did not only show more multiperspectivity in general and regarding the Cyprus conflict in specific, but also more multiperspectivity regarding key historical issues in the Israeli-Palestinian situation, even though they did not play a game about this conflict. Finally, no spillover effect was detected regarding multiperspectivity in general and multiperspectivity in the Cyprus conflict in particular for Israelis or Palestinians, who are third parties to the Cyprus conflict, from PM representing one's context (Israeli-Palestinian conflict) to FF representing a different conflictual context (Cyprus conflict).

These findings are important because this is the first time a study suggests multiperspectivity outcomes for direct parties to the Israeli-Palestinian conflict with respect to key historical issues in the conflict. Moreover, this study advances our knowledge of the behavioral effects of social impact games by demonstrating that the multiperspectivity effects of the aforementioned games may extend well beyond a specific conflictual context. It is hard to challenge young people's perspectives regarding intractable conflicts, particularly via short-term interventions. Therefore, the fact that a single, short interaction of Israeli and Palestinian young people with one or two games, with no social contact with members of the out-group, affected their multiperspectivity regarding key historical issues in the Israeli-Palestinian conflict shows how powerful games can be as agents for social change.

Young Israeli and Palestinian people may not willingly access the aforementioned type of content. In fact, in the context of intractable conflicts such as the Israeli-Palestinian situation, there are hardly any peace education interventions that individuals willingly access (e.g., Hasler et al., 2023; Porat et al., 2020). However, games which are enjoyable, involving and engaging, may be a preferred peace education intervention (e.g., Cuhadar & Kampf, 2014) to be delivered in schools, universities and by governmental as well as non-

governmental organizations for developing multiperspectivity and less ethnocentric viewpoints, particularly in the context of intractable conflicts such as the Israeli-Palestinian situation.

Given the results, we should emphasize that that PM is still an effective game in multiperspectivity terms regarding key historical issues in the Israeli-Palestinian conflict as well as regarding current events in the conflict (i.e., Gaza operations) for third party respondents such as Americans and Turks (e.g., Cuhadar & Kampf, 2014). In addition, PM is highly effective in knowledge acquisition for direct party participants, particularly with respect to contradicting information which is hard to be exposed to in the context of highly loaded and violent issues such as the Israeli-Palestinian situation (Kampf & Stoloro, 2017). Finally, based on previous findings (e.g., Cuhadar & Kampf, 2014), and given that only one out of 203 students in our study had previous experience with PM, we do not anticipate that previous experience with playing PM could be influential on the spillover effect in this study.

Can we confidently attribute the spillover effect solely to the game itself, or could it also be influenced by the types of questions asked? Given that the historical and general questions regarding multiperspectivity didn't have an impact in the case of PM according to previous research (Kampf, 2015), it is possible to suggest that the impact in the current study was obtained by playing the FF game rather than by framing the pre-game questionnaire used in the case of FF.

This research study has some limitations that cannot be ignored. First, the study relies on a relatively small number of participants, focusing on convenience rather than random sampling and random assignment to the different conditions. In addition, the study was targeted toward young adults, who may be more susceptible to multiperspectivity than their older counterparts (e.g., Hasler et al., 2023). Finally, the second phase was conducted only among Israelis due to time constraints. We can also acknowledge that the identified differences in the results might have been influenced to some extent by the use of two different instruments that measured multiperspectivity. This should be taken into consideration in future research.

Further research should examine the effects – direct and spillover effects – of social impact games on all age cohorts, ideally using a national sample. This could be accomplished with a nationally representative sample in online experiments, using tracking software to control whether and how respondents play the game. In addition, future research should examine how FF achieves its spillover outcomes and why it had an impact on developing higher multiperspectivity regarding key historical issues in the Israeli-Palestinian situation, even though Israeli students did not experience any intervention regarding the Israeli-Palestinian situation.

Previous research has already indicated that Israeli-Jewish and Palestinian young people hold ethnocentric and violent images of one another constructed by the news media and daily events (Salomon, 2009). Furthermore, since Israeli-Jewish and Palestinian young people have never actually experienced a situation of peace, they may not regard it as a significant value for which a price should be paid (Cuhadar & Kampf, 2014; Salomon, 2009). Therefore, the option for these young people to develop multiperspectivity and increase their understanding of the other's perspective, particularly through indirect and less threatening interventions, such as the use of a serious game about a different conflictual context, is an issue of great importance in any process of conflict resolution and peacebuilding in the Middle East.

Note

1. The proximity of the p -value to the alpha level, though not statistically significant, makes the two groups of Israelis borderline equivalent resulting in a potential interpretive ambiguity in our results for the analyses of RQ1.

Data availability statement

<https://doi.org/10.5281/zenodo.8385824>

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Ronit Kampf, PhD is a teaching fellow in the Department of International Relations at the Hebrew University of Jerusalem and in the Department of Communication at Tel Aviv University in Israel. Her expertise is in studying computerized simulations for learning and social change in different conflict zones around the world, particularly the Israeli-Palestinian situation. Email: ronit.kampf@mail.huji.ac.il

Iolie Nicolaidou, PhD, is an Assistant Professor in the Department of Communication and Internet Studies, Cyprus University of Technology. Her expertise is in the design, implementation, and evaluation of emerging technologies (e.g., web-based learning environments, serious games, gamified apps, simulations, and virtual reality) for learning and social change.

References

- Angeli, D. D., Finnegan, D. J., Scott, L., & O’neill, E. (2021). Unsettling Play: Perceptions of Agonistic Games. *Journal on Computing and Cultural Heritage*, 14(2), 15:1–15:25. <https://doi.org/10.1145/3431925>
- Bail, C. A., Argyle, L. P., Brown, T. W., Bumpus, J. P., Chen, H., Hunzaker, M. B. F., Lee, J., Mann, M., Merhout, F., & Volfovsky, A. (2018). Exposure to opposing views on social media can increase political polarization. *Proceedings of the National Academy of Sciences*, 9216–9221. <https://doi.org/10.1073/pnas.1804840115>
- Bar-Tal, D. (1997). Formation and change of ethnic and national stereotypes: An integrative model. *International Journal of Intercultural Relations*, 21(4), 491–523. [https://doi.org/10.1016/S0147-1767\(97\)00022-9](https://doi.org/10.1016/S0147-1767(97)00022-9)
- Bar-Tal, D. (2013). *Intractable conflicts: Socio-psychological foundations and dynamics*. Cambridge University Press.
- Baumgartner, J. (2016). Late Night talk moved online: Political humor, YouTube and the 2016 presidential election. In J. baumgartner, & T. L. Towner (Eds.), *The Internet and the 2016 presidential campaign* (pp. 219–231). Lexington Press.
- Baumgartner, J. (2013). No laughing matter? Young adults and the “spillover effect” of candidate-centered political humor. *Humor*, 26(1), 1–17. doi:10.1515/humor-2013-0003
- Boyd, D. (2014). *It’s complicated: The social lives of networked teens*. Yale University press. pp. 54-76.
- Burak, A., Keylor, E. and Sweeney, T. (2005) ‘Peacemaker: A video game to teach Peace’, in M. Maybury, O. Stock, and W. Wahlster (eds) *Intelligent technologies for interactive entertainment*. Berlin, Heidelberg: Springer (Lecture notes in computer science), pp. 307–310. https://doi.org/10.1007/11590323_40.
- Cuhadar, E., & Kampf, R. (2014). Learning about the Israeli-Palestinian conflict and negotiations through simulations: the case of PeaceMaker. *International Studies Perspectives*, 15, 142–162.

- De Angeli, D., Finnegan, D. J., Scott, L., Bull, A., & O'Neill, E. (2018). Agonistic games: Multiperspective and unsettling games for a social Change. In *In proceedings of the 2018 annual symposium on computer-human interaction in play companion extended abstracts* (pp. 103–108). Association for Computing Machinery (CHI PLAY '18 Extended Abstracts). <https://doi.org/10.1145/3270316.3270594>.
- Devon, A., & Wansink, B. (2022). Brokers of multiperspectivity in history education in post-conflict societies. *Journal of Peace Education*, 19(1), 67–90. doi:10.1080/17400201.2022.2051002
- De Zuniga, H. G., Goyanes, M., & Borah, P. (2021). How do people learn about politics when inadvertently exposed to news? Incidental news paradoxical direct and indirect effects on political knowledge. *Computers in Human Behavior*, 121, 35–49.
- Feezell, J. T., & Ortiz, B. (2021). I saw it on Facebook': An experimental analysis of political learning through social media. *Information, Communication and Society*, 24(9).
- Hasler, B., Landau, D., Hasson, Y., Schori-Eyal, N., Giron, J., Kevy, J., Halperin, E., & Friedman, D. (2021). Virtual reality-based conflict resolution: The impact of immersive 360° video on changing view points and moral judgment in the context of violent intergroup conflict. *New Media & Society*, 23(8), 2255–2227. doi:10.1177/1461444821993133
- Hasler, B., Leshem, O., Hasson, Y., Landau, D., Krayem, Y., Blatansky, C., Baratz, G., Friedman, D., Psaltis, C., Cakal, H., Cohen-Chen, S., & Halperin, E. (2023). Young generations' hopelessness perpetuates long-term conflicts. *Scientific Reports*, 13(4926).
- Kampf, R. (2015). Computerized simulations of the Israeli-Palestinian conflict and attitude change. *eLearning Papers*, 43, 121.
- Kampf, R., & Cuhadar, E. (2015). Do computer games enhance learning about conflicts? A cross-national inquiry into proximate and distant scenarios in Global Conflicts. *Computers in Human Behavior*, 52, 541–549.
- Kampf, R., & Stoloro, N. (2017). Learning about the Israeli-Palestinian conflict through computerized simulations: The case of Global Conflicts. *Social Science Computer Review*, 25, 195–210.
- Kriesberg, L., Northrup, T. A., & Thorson, S. J. (1989). *Intractable conflicts and their transformation*. Syracuse University Press.
- Lee, S., Nanz, A., & Heiss, R. (2022). Platform-dependent effects of incidental exposure to political news on political knowledge and political participation. *Computers in Human Behavior*, 127, 20–29.
- Levy, J., Baratz, G., & Hasler, B. S. (2022). Empathy with the enemy through virtual reality based immersive 360° video: The role of political ideology. *Journal of Conflict Resolution*, 17, 20–31.
- McKeown, S., & Dixon, J. (2017). The “contact hypothesis”: Critical reflections and future directions. *Social and Personality Psychology Compass*, 11(1), e12295. <https://doi.org/10.1111/spc3.12295>
- Mitgutsch, K. (2011). Serious learning in serious Games. In M. Ma, A. Oikonomou, & L. C. Jain (Eds.), *Serious games and edutainment applications* (pp. 45–58). Springer. https://doi.org/10.1007/978-1-4471-2161-9_4.
- Nicolaidou, I., Egenfeldt-Nielsen, S., Zupancic, R., Hajsland, S., & Milinoi, D. L. (2023). Developing Fact Finders: A mobile game for overcoming intractable conflicts. *Social Science Computer Review*, 41(4), 1166–1186. <https://doi.org/10.1177/08944393211073586>
- Porat, R., Erel, L., Pnueli, V., & Halperin, E. (2020). Developing ReApp: An emotion regulation mobile intervention for intergroup conflict. *Cognition and Emotion*, 34(7), 1326–1342. <https://doi.org/10.1080/02699931.2020.1747400>
- Prenksy, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon*, 9(5), 1. doi:10.1108/10748120110424816
- Ross, L., & Stillinger, C. (1988). *Psychological barriers to conflict resolution*. Stanford center on conflict and negotiation. Stanford University.
- Salomon, G. (2009). Peace education: Its nature, nurture and the challenges It faces. In J. de Rivera (Ed.), *Handbook on building cultures of peace, peace psychology book series* (pp. 107–121). Springer. <https://doi.org/10.1007/978-0-387-09575-28>.
- Saunders, H. (2001). *A public peace process: Sustained dialogue to transform racial and ethnic conflicts* (1999th edition). Palgrave Macmillan.